What's The Matter With Mars? If all strange theories be true the earth dweller who gets a glimpse of the weird and wonderful Martian populace will stand aghast at a motley collection more grotesque than any monster that ever paraded through dreamland & & & "As gravity on the surface of Mars | beasts and birds all have eyes." Sir | Many of them, of course, approach is really a little more than one-third that at the surface of the earth—the chemical compounds may be intelligent tific way, but they approach it, and the true ratio is not eighty-one, but about because "it is absurd to suppose that pictures which they draw are very alfifty-that is, a Martian would be consciousness may not exist with forms luring. Thus Sir Robert Ball, who physically about fifty fold more efficient of matter the existence of which we are stands unquestionably at the head of his profession, draws one of the most pleasjust beginning to suspect." The most interesting because the most ing pictures—a picture which has served Having proved what his physical proportions would be the astronomers are convincing of all this curious argument as much as any other to hearten the not quite content to rest there, but go is that which relates to the possibility modern believer in life upon the little on in some instances to set forth a few of life on Mars-the wonderfully earth- planet and make him feel that some of his possible physical characteristics. like sphere which swings so far from day his faith will be justified. all of which are decidedly interesting, and so near to our own comfortable 'That there may be types of life of Mr. R. A. Gregory believes "that people little globe. Here many astronomers are some kind or other on Mars," says Sir with immense chests" or "folk with gills at one again. Sir Robert Ball, Sir Will-Robert Ball, "is, I should think, very like fishes" could pass a comfortable existence there in spite of the rarefied at-dozen all voice the faith if not the fact hydrogen, which are more intimately associated with the phenomena of life here that such is really the case. appear to be among the most widely distributed elements throughout the uni-Emanuel Swedenborgs verse, and their presence on Mars is in the highest degree probable. But what Vision of a martian form the progress of evolution may have \$**\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$** taken it seems wholly impossible to conjecture. It is true, no doubt, that small BY SIR ROBERT BALL. planets like Mars would be fitted for the THAT there may be types of residence of large beings and large planlife of some kind or other ets (like Jupiter) would be proper for on Mars is, I should think, small ones. Still I would suggest, however, that as our earth has only been very likely. H.G.WILL'S idea of The actual Martian tenanted by intelligent beings for an ex-But what form the progress tremely brief period of its history-say, from The War of the World's of evolution may have been for example, about ore-thousandth part capylight by Halper 1310. it seems totally impossible to of the entire number of years during which our globe has had an independent conjure. It is true, no doubt, essed of inventions of which we have existence, we may fairly conjecture that HISTORY OF MARS. that small planets (like Mars) not dreamed. "With them," says Mr. Lowell, "electrophone and kinetoscope the occupancy of any other world by inwould be fitted for the resi-272-The first known observation Mars is recorded in Ptolemy's telligent beings might be only a very minute fraction in the space of the are probably things of a bygone past dence of large beings, and preserved with veneration in museums A. D. 1610—The phases of Mars were dis-covered by Galileo. large planets would be proper planet's history." as relics of the simple childhood of the for small ones. The Lillipu-1659—The first sketch showing surface details was made by Huygens. He also suggested a rotation of twenty-four hours. What this means is that life may be race. Certainly, what we see hints at tians might be sought for in a there, and it is fair to assume, as Mr. the existence of beings who are in ad-Lowell and many others really do, that vance of, not behind, us in the jourglobe like Jupiter, and the it is present now. Mars being old, we ney of life." four hours.

6-Cassini determined the rotation of Mars to take place in twenty-four hours and forty minutes. He also observed the solar caps, and distinguished on the disk of Mars, near its terminator, a white spot advancing into the dark portion. Brobdingnagians in a globe know the evolution on its surface must And so the investigation of Mars like Mars. be similarly advanced, and it is highly moves for aard. Although we have not probably that Martian folks are pos-\*\*\*\*\* reached the place where, as some pose, if we had a flag as large as Ire-land or a grove of lights as great as ARS and its possible inhabitants another of Gregorys ing into the dark portion.

TiT—Sir William Herschel made the first recognizable sketch of the surface detail of Mars.

TiS—Sir William Herschel detected the variation in the size of the polar snow caps, measured the polar compression, and determined the inclination of the axis of the planet to its orbit. are always a source of specu-England, we could make them see and lation to scientists, and many understand, still we are progressing. If there is life of the intelligence deideas and diverse are the opinions as scribed, it is not improbable that some to the little planet and its place in the universe. method of communication may yet be For forty years human information as found, seeing that we are discovering to Mars has gradually grown, but from day to day that which was once The knowledge of the forms of Martian life the impossible is now the possible and Univer is mostly theoretic. Percival Lowell, many things that were hid are plainly astronomer of the Lowell Observatory. pression believes that life exists on Mars and supposed then to be clouds.

1840—Beer and Maedler published the first map of the planet assigning latitudes and longitudes to the various markings. On this map are indicated the first canal and the first of the small lakes.

1855—Secchi made the first study of the colors exhibited by the planet. that the Martian "canals" (so-called) evidence a high degree of intelligence. is that the states that Martians Martian is "Irrigation unscientifically conducted," of morvelou he asserts, "would not give us such a may take this form brain dev truly wonderful mathematical fitness in copment the several ports as we there beheld. A 1862-Lockyer made the first sketch showing all the forms with which we are now familiar. mind of no mean order would seem to mine the force (or downward pull) of have presided over the system-a mind certainly of considerably more compregravity upon the surface of a planet, 1864-Dawes detected eight or ten of the hensiveness than that which presides and this affects the size of things. Thus over the various departments of our pub-1867-Huggins detected lines due to the presence of water vapor in the spectrum of Mars. lic works. Party politics, at all events, little more than one-third what it is on have had no part in them, for the sys- the surface of the earth-a fact which 1867-Proder determined the period of rotation of Mars within 0.1 second. would work in two ways. The first way tem is planet wide.' On the other hand, W. S. Holden, as- would be in lightening the weight of 1877-Hall discovered the two satellites of Mars. tronomer of the Lick Observatory, holds things so that three times as much work an entirely different view. According would be done by expending only once 1882—Schiaparelli discovered numerous double canals and announced that the appearance formed one of the characteristic phenomena of the to him, the snow caps as seen through as much or the same muscular force the telescope are not composed of snow that we do here. In the next place at all, but rather of solid carbonic acid nature could afford to build her inhabi-By H. G. WELLS The lakes and seas and canals tants on three times the scale she does BIG, grayish, rounded bulk, are merely color phenomena, such as here, since the lightness of the gravitory may be seen upon the moon to-day, and pull would make them exceedingly nimthe size, perhaps, of a bear, the lines of double canals noted by ble. We think of a large person or thing out of the cylinder.

Schlaparelli, Flammarion, Lockyer and others optical illusions which come from long straining with the eyes. Between these extremes are all forms of strange theories, records who kays an engage. was rising slowly and painfully ople who have an enormous quently by the mere influence of his ed and had, one might say, a face, chest development, people who have gills size, coupled with the greater lightness There was a mouth under the like fishes, people who are formed like of the materials with which he would lizards or overgrown like giants, four- be called upon to deal, he should be able eyes, the lifeless brim of which quivered and panted and dropped footed creatures, strong, powerful dou- to really do many times as much work saliva. The body heaved and pulble-eyed individuals, whose reasoning as any poor struggling earthling, and sated convulsively. A lank tencapacity is always, owing to the age of to do it with much greater speed. tacle appendage gripped the edge the planet, thought to be high, and How this is scientifically worked out is of the cylinder. Another swayed whose social life may be enhanced by shown by Professor Lowell, who does in the air. material improvements which would not hesitate to draw a very striking Those who have never seen make our own look like the implements picture of the effective powers of the living Martian can scarcely imag-Dr Balls ideas Martian. ine the : range horror of their ap-In fact, the ideas advanced as to the "To see this," he says, "let us con-The peculiar V-shaped nature of life upon the fiery planet are sider a very simple case-that of mouth with its pointed upper lip. so various and so well-sustained that standing erect. To this every-day feat the absence of brow ridges, the one may readily question whether anyis opposed the weight of the body of a chin beneath the thing definite is known at all. -a' thing of three dimensions, wedge-like lower lip, the incessant One of the most interesting theories height, breadth and thickness-while the quivering of this mouth, the Gorconcerning the Martians, and upon ability to accomplish it resides in the gon groups of tentacles, the tuwhich all astronomers are apparently cross section of the muscles of the knee, multuous breathing of the lungs agreed, is that if there is any such a thing of only two dimensions-breadth in a strange atmosphere, the evithing as life in the form in which we dent heaviness and painfulness of and thickness. know it, it is of enormous size-three to "Consequently, a person half as large movement, due to the great five times as large as anything of the again as another has about twice the gravitational energy of the earth same order here. Men, trees, flowers, supporting capacity of that other, but -above all, the extraordinary inbirds-all would be of Brobdingnagian about three times as much to support. tensity of the immense eyes-culproportions, and for the following rea-Standing therefore will tire him mor ninated in an effect akin to nausons, which Percival Lowell, the last astronomer of great reputation to reason quickly. "If his size were to go on increasing, There was something fungoid upon this subject, has given. This is, he would at last reach a stature at n the oily brown skin, something says, the effect of mere size of habiwhich he would no longer be able to in the clumsy deliberation of the tat (or the planet on which we live) stand at all, but would have to lie movements exceedingly upon the size of the inhabitant. down. You shall see the same effect & terrible. Volume and mass," he says, "deterin quite inanimate objects. Take two \$44444444444444444444 \*\*\*\*\*\* cylinders of paraffine wax, one made into an ordinary candle, the other into mosphere," and Howard Swan says that BY HOWARD SWAN. a giant facsimile of one, and then "their eyes are like our eyes." Mr. Low-IN the first place, as regards To the ell suggests that they might be lizards or stand both upon their bases. I the physical bodies of the small one nothing happens. The big one, indeed of any conceivable or unconceiv however, begins to settle, the base actu- able form, since Mars characteristics inhabitants of others planets, ally made viscous by the pressure of the "are purely accidental." These views we cannot tell if their bodies weight above. Now, apply this principle coupled with those of Sir William Ramare like our own, or their surto a possible inhabitant of Mars, and say, who believes that gases or com suppose him to be constructed three pounds of chemicals, without visible roundings. times as large as a human being in form, might be intelligent; of Sweden-There may be less or more every dimension. If he were on earth borg, the great northern mystic, who air there, and so their ears he would weigh twenty-seven times as saw a Martian "whose face was like the much, but on the surface of Mars, since faces of the inhabitants of our earth, but may not register the same gravity there is only about one-third the lower part black, not from a beard, sounds. They even may not of what it is here, he would weigh but for he had none, but from a blackness in have any ears; their nerves nine times as much. The cross section place of a beard," and that of Mr. H. G. and muscles under varying Wells, who described his octopus-like of his muscles would be nine times as conditions of gravitation may visitor as a big grayish rounded bulk, Therefore the ratio of his supporting power to the weight he must give us a very curiouscollection of Marbe very differently constituted. tians not wholly unsanctioned by But I venture to think that supports would be the same as ours. science. Consequently, he would be able to stand their eyes must be similarly with as little fatigue as we. Mr. Gregory believes that people with constituted to our eyes, since "Now, consider the work he might be an enormous chest development or gills they live in the same sun's His muscles, having length, could live on Mars, because whatever rays, which rays, as we know breadth and thickness, would all be atmosphere exists on Mars must be twenty-seven times as effective as ours. much thinner than ours and far too rare by experience, can produce He would prove twenty-seven times as to sustain the life of a people of ou

the same physical, actinic and

electrical effects either with or without air. And further, both in and out of air, fishes, beasts and birds all have eyes. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

strong as we, and could accomplish twenty-seven times as much. But he would further work upon what required, owing to decreased gravity, but one-third the effort to overcome. His effective force, therefore, would be eighty-one times as great as man's, whether in digging canals or in other bodily accuse tion.

air, and both in and out of air fishes,